

CLAIMS

1. A method for uniform bonding of a nonwoven comprising cut fibres and/or filaments such as also synthetic fibres continuously laid immediately previously, possibly mixed with natural fibres such as also pulp, formed for example by a carder or by the air laying method and/or by means of the spun bond method and which fibres are then intertwined by means of hydrodynamic needle punching, wherein the nonwoven is exposed to a row of water jet bonding treatments on one or both sides, characterised in that before, during and/or after a first hydrodynamic needle-punching and/or a subsequent hydrodynamic needle-punching over the width, the nonwoven at least partially undergoes a forced re-orientation of the fibres and the nonwoven is then subjected to a further water jet treatment.
2. The method according to claim 1, characterised in that the nonwoven is stretched over the width to partially re-orientate the fibres.
3. The method according to claim 1 and/or claim 2, characterised in that the nonwoven is uniformly pressed over the width after a hydrodynamic needle-punching.
4. The method according to claim 1 and/or 2 and/or 3, characterised in that after a hydrodynamic needle punching the nonwoven is brushed uniformly over the width transverse to the direction of transport, for example.
5. The method according to claim 1 and/or 2-4, characterised in that after a hydrodynamic needle

punching the nonwoven is exposed to water jets uniformly over the width transverse to the direction of transport.

6. The method according to claim 1 and/or 2-5, characterised in that after a hydrodynamic needle punching the nonwoven is exposed to water jets which change transversely to the direction of transport, perpendicular to the plane of the nonwoven.
7. The method according to claims 1 to 6, characterised in that the nonwoven repeatedly undergoes successive hydrodynamic needle punching and is then stretched and/or pressed and/or brushed over the width and needle-punched again.
8. The method according to any one of claims 1 to 7, characterised in that the stretching or brushing process is carried out uniformly over the width of the nonwoven when the nonwoven is completely supported over the width.
9. The method according to any one of the preceding claims, characterised in that another nonwoven is supplied to the nonwoven thus prebonded and both nonwovens are bonded together.
10. An installation for bonding a fibre nonwoven for carrying out the method according to one of the preceding claims, characterised in that a device for water needle punching is combined with a following stretching device which strains the prebonded nonwoven uniformly over the width.
11. The installation according to claim 10, characterised in that the stretching device is again followed by a water needle punching device and so on.

12. The installation for bonding a fibre nonwoven for implementing the method according to one of the preceding claims, characterised in that a device for water needle-punching is combined with a following pressing and/or brushing device and/or hydrodynamic needle punching device which laterally changes the fibre orientation of the prebonded nonwoven uniformly over the width.